

Diode-matching unit. (And there's a mistake!)

Thanks to SARC club members, I have a lot of oldRadCom's and PW's to get construction ideas from.

One of these ideas is a very simple diode matching unit. Based on G3HGZ "offer to real home-brewers", the circuit is very simple and very cheap! He writes: "Users of this circuit who have wondered why their home-brewed double-balanced diode ring mixers (or indeed any balanced diode mixer) have underperformed will have it revealed that diodes selected for "balance" by simply comparing their forward resistances at any single voltage (the voltage being applied by the ohmmeter) usually differ widely at different forward voltages. The circuit comprises a simple bridge with the two diodes under examination forming the lower arms. The two 3K9 resistors should be selected by measurement on a digital ohmmeter. Although their exact value is unimportant, they **must** be of identical resistance. The 50 μ A meter shows zero reading when the two diodes are passing identical currents (ie they are matched at that applied voltage). The 5K potentiometer allows a voltage varying from zero to approximately 9V to be applied. A current flows when the bridge is unbalanced by different forward resistances of the diodes. Ideally the meter should be of the centre-zero type, but an end-zero meter is usable though not so convenient, since it requires the diode to be interchanged when it is a negative reading.



I believe that most users will be astounded by the spread of characteristics between diodes bearing the same type number, and will be driven to seek a pair of diodes where the needle virtually fails to move throughout a full sweep of the potentiometer. I have found that a meter reading of less than 1 μ A throughout the range indicates a match far better than that obtained by purchasing so-called "matched diodes". Due allowance should be made for the fact that germanium diodes do not start to conduct until approximate 0.2V is applied. The corresponding figure for silicon diodes is about 0.6V"

I made it and it works although I made a mistake.
Can you tell what it is?

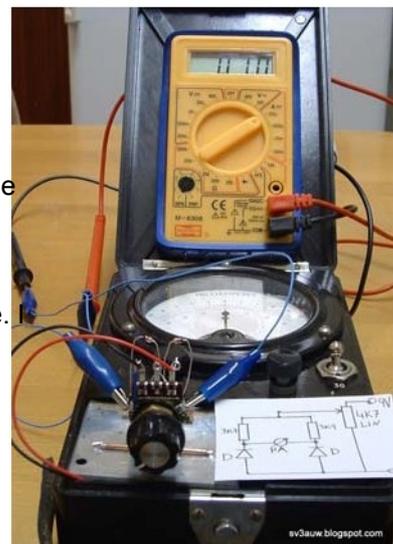
My "mistake"!

The schematic calls for a μ A meter where I used a mA meter!



I repeated the circuit to demonstrate that I can use my DVOM as a centre-zero meter. I just have to rotate the potentiometer slowly .

All you need for this handy gadget are two matched-value resistors, one potentiometer, one PP3 battery with clip and your imagination! Oh! And your DVOM of course. I guess you have one!



73, Panos

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